Interdisciplinarity as a budget band-aid in higher education: does it heal or just hide the wound?

Position paper Teaching at Utrecht University (T@UU)

Introduction

Foundation Models are deep learning models trained on vast and heterogeneous datasets, spanning multiple disciplines, designed to solve a general range of tasks. Generative AI applications like Large Language Models (LLMs) are examples of foundation models. This broad "interdisciplinary" training fosters creativity and adaptability but can dilute mastery of any single field. This is why pre-trained foundation models are typically further refined to specific downstream tasks and retrained on domain-specific data to improve performance.

Likewise, students educated predominantly in interdisciplinary programs may need disciplinary "fine-tuning" to achieve professional-level competence. While interdisciplinarity kindles innovative thinking, a strong disciplinary grounding is required for rigorous problem-solving. Moreover, assessing students' expertise benefits from established discipline-specific assessment frameworks. Interdisciplinary education lacks standardised methods to ensure further equity in evaluation, which can undermine student motivation and impede accurate measurement of learning outcomes. Faculty programs are therefore essential for equipping students with strong expertise, and for implementing efficient and coherent assessment strategies.

In an era marked by global challenges, interdisciplinarity is often heralded as a solution to a range of issues facing higher education, from producing more adaptable graduates to addressing budget cuts. This promise of integration across fields has gained traction, also in our own university. However, while interdisciplinarity offers distinct benefits, it also comes with its own set of challenges, especially when considered as a catch-all remedy for complex systemic problems.

The appeal of interdisciplinarity in higher education

Interdisciplinarity is increasingly popular among university boards because it seems to align with both academic ideals and market demands. It allows students to develop boundary-crossing skills, such as changing perspectives, synthesising knowledge and coping with complexity (Spelt et al., 2009), which are essential in an interconnected world. Unlike multidisciplinarity, which merely combines knowledge from separate fields, interdisciplinarity integrates and synthesises concepts, potentially leading to unique insights and new solutions (Klein, 1990; Van den Beemt et al., 2020). In theory, this produces graduates who can "speak one language," or in other words, think across domains in a way that promotes innovation and problem-solving (Van den Beemt et al., 2020).

Yet, as Clark and Wallace (2015) observe, the field of interdisciplinarity itself is fragmented, with a lack of cohesion in theoretical understanding and pedagogy. The literature and empirical work often overlook foundational approaches or fail to build upon earlier, comprehensive frameworks, leading to gaps in effective pedagogical strategies (Falcus, Cameron & Halsall, 2019). This lack of a cohesive theoretical underpinning makes interdisciplinarity an unevenly applied and frequently misunderstood concept. For example, while interdisciplinary practices might be beneficial for certain academic projects or in response to societal issues, they are not always applicable or feasible for addressing deep-seated budget constraints or

institutional challenges. More specifically, some students enter the university already knowing what they want to study. For them, interdisciplinarity may seem meaningless given the belief or misconceptions rather, that it is meant for students, whose academic pathway has yet to be decided, in other words those willing to experiment and try something new. This way, interdisciplinary approaches may lead to confusion among students. Equally, some lecturers may see interdisciplinarity as a threat to their academic future. In some circumstances, it could bring with it insecurities especially for those with a clear pathway and track-record in the field but edging toward retirement, for example.

Addressing budget cuts with interdisciplinarity: an over-simplified solution?

The enthusiasm for interdisciplinarity sometimes veers into over-simplification, particularly when it is proposed as a solution for budget cuts in education. While merging fields can consolidate resources, the assumption that interdisciplinary programs will offset financial constraints fails to account for the practical realities and expenses of maintaining effective interdisciplinary programs. Realising the benefits of interdisciplinarity requires thoughtful design, including support for faculty training, adjustments to curriculum structure and sustained funding, all of which are in short supply in the current climate of budget cuts.

As Lyall et al. (2015) argue, effective interdisciplinarity requires more than just bringing people together from different fields; it demands a thorough understanding of how these fields interact, along with a well-thought-out pedagogical approach. As articulated in the *Living Manifesto* by the faculty of Humanities of the UU, it is important to provide students with a strong disciplinary foundation. They develop essential expertise in their respective fields, gaining in-depth knowledge of key theories, concepts, historical developments, and major debates. Additionally, they refine their critical analysis skills, learn to position themselves within academic discussions, and acquire the ability to design and execute independent research projects.

Without adequate resources, interdisciplinary programs risk becoming superficial and hence fail. The ambition to create broad-minded, adaptable students may falter if interdisciplinary initiatives are under-resourced or rushed. Moreover, interdisciplinarity in practice often encounters obstacles. The competitive nature of academia incentivises departments to distinguish themselves, which can counteract the collaborative ethos interdisciplinarity aims to foster (Falcus et al., 2019). This creates a paradox: interdisciplinarity is celebrated in theory but difficult to implement within the existing structures of higher education, where academic departments are often evaluated based on distinct disciplinary achievements and rankings.

The lack of a shared definition and theoretical framework for interdisciplinarity complicates efforts to implement it meaningfully. The "unorganised" nature of interdisciplinary literature, as noted by Clark and Wallace (2015), often results in fragmented approaches that fail to address deeper educational goals. For interdisciplinary initiatives to thrive, universities need to embrace an integrative vision that values the unique perspectives of each discipline while fostering a unified academic identity.

Finally, it cannot all be interdisciplinary. While interdisciplinary approaches foster creativity and innovation by bridging diverse fields of knowledge, domain specificity remains a crucial pillar of education and a base for interdisciplinarity. Specialised expertise provides the depth necessary to address complex problems within a given field, ensuring that foundational knowledge and technical skills are not diluted. Without a strong grounding in specific domains, students and professionals may lack the precision and rigour required to advance their disciplines or make informed contributions to interdisciplinary collaborations. Balancing interdisciplinarity with domain specificity ensures that learners gain both the breadth and depth needed to navigate and impact an increasingly complex world.

Moving towards a sustainable model

To truly leverage interdisciplinarity, universities, as well as UU, need to invest in sustained, meaningful support structures. This means reimagining faculty development, reshaping curriculum in a way that transcends disciplinary silos, and committing to funding interdisciplinary projects without relying on them to solve budget shortfalls. Without such investments, interdisciplinarity may continue to be more of a buzzword than a transformative educational model.

We, the Teaching Community at Utrecht University (T@UU), embody an interdisciplinary council, bringing together perspectives from a diverse range of faculties and roles - from biomedical sciences to art history, and from educational developers to full professors. As a teaching community, we see that the key to interdisciplinary is empathy; we need to be open to others and other perspectives. As a teaching community, we serve as a base for a meeting point where all kinds of teachers can voice their interests. We advocate for a genuinely integrative model of interdisciplinarity. One that enriches education and research by bridging disciplines meaningfully, rather than merely serving as a stopgap solution for addressing budget shortfalls. Interdisciplinarity should not be a tool for cost-cutting but a transformative approach that requires sustained investment, thoughtful design and institutional commitment.

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